

Elaine McCluskey

From: Elaine McCluskey [mccluskey@fnal.gov]
Sent: Wednesday, August 25, 2004 3:58 PM
To: Bill Foster; Chuck Federowicz; David Finley; Dixon Bogert; Duane Plant; Ed Crumpley; fgarcia@fnal.gov; Rich Stanek; Shekar Mishra; Tom Lackowski; Vic Kuchler; Weiren Chou
Subject: Notes from 8/25/04 Proton Driver Meeting

Notes from the meeting:

Attendees: Bill Foster, Duane Plant, Fernanda Garcia, Tom Lackowski, Chuck Federowicz, Vic Kuchler, Elaine McCluskey, Dave Finley, Dixon Bogert

Items discussed:

1. Linac/gallery cost estimates: Elaine and Tom presented in a spreadsheet and with hand sketches 5 alternatives for constructing the beamline enclosure and Klystron gallery. Variables are depth, shielding, and type of excavation. Costs for the combined enclosure and gallery ranged from \$5800 to \$9000/lin ft beamline.
2. Discussion of the variables ensued.
 1. Beamline depth at 725 offers shallower excavation, but is probably only likely at a lower shielding criteria. Physics implications of the linac at 725 with a required "diving down" to get to Main Injector could cause vertical dispersion, which can be corrected in the machine, but this has financial impacts. Bill determined that the savings in excavation costs doesn't warrant further exploration at this shallower depth, which means the beamline should stay at MI depth = 715'-9".
 2. Shielding requirements along length linac might be variable due to change in power along length of linac. Alternates looked at either 26 ft (MI shielding criteria) or 15 ft. Bill asked if excavated material would go back on top of tunnel, creating a berm at minimal cost. Discussions about timing of construction and economy of importing material in winter and spring led to decision to look at how much material would be left if volume excavated was left on site, with some assumptions about importing in bad weather. Shielding criteria for design of enclosure is set at 26 ft to give maximum flexibility down the road for future shielding requirements.
 3. Braced versus open cut excavation – observation was made that braced is more expensive. Discussions about slurry walls ensued. Although no final statements were made, conclusions seemed to be that open cut was preferable.
 4. This lead to discussion of placement of building in relationship to excavation – is much saved by moving building away, hence having shallower footings versus longer waveguides. Waveguides would be put in pipes with spiders – probably not necessary to provide intermediate support. Length of waveguide not deciding factor on how far to place building from enclosure.
3. Access solutions: Discussion of how far apart stairs should be along length of enclosure led to review of what other facilities have done: SSC (550 ft), SNS (600 ft). PD would try to go with SNS type spacing, since this has been accepted by DOE recently and may be seen as "sane". There would need to be a couple of accesses from the gallery to the enclosure for operational reasons. Tom mentioned that this would also be how utilities would get from the surface to the enclosure. Bill also mentioned that the cryo/water pump building would be in the middle of the length of the linac, and this could also provide a place for access.
4. Future work: What is required through December was discussed. This was decided:
 1. need 5-10 drawings similar to what was produced by FESS for the prior 8 GEV Linac study. Bill will be working on getting the RF station information to put in the cross sections.
 2. plan to have drawings done by November 1st to be able to have time for discussions and changes.
 3. will also need text to go with it, again like prior study
 4. Tom/Elaine will put together budget required to do this for FY05

5. Chuck will be meeting with Dave Finley, et al, to get layout of the enclosure nailed down.
6. Elaine reported that, although additional information on SNS shielding had been received, it doesn't seem final. Dave and Bill directed her to other websites for more information.
7. Items from last meeting:
 8. Better sense about the feasibility of running the linac backwards to make the "outside the Main Ring" FEL scenarios more plausible. **NO ACTION YET**
 9. Proper radius from PD to FEL **NO ACTION YET**
 10. Possibility of a sharper bend at the MI/8GeV intersection point with the PD transfer line - **BILL DETERMINED THAT USING EXISTING 8 GEV LINE NOT PRACTICAL**

ITEMS FOR NEXT WEEK:

- ° Bill will email powerpoint presentation of layout to everyone

NEXT MEETING TO BE 9/1/04 AT 9:30 A.M. IN SMALL DINING ROOM.

Elaine McCluskey
Fermi National Accelerator Laboratory
FESS Engineering
(630) 840-2193
mccluskey@fnal.gov